Chemical
Eye and Face Protection
Training

Guidance for Shipboard Maintenance Personnel, Work-Center Supervisors, Safety Officers, Hazardous Material Coordinators and Medical Department Personnel

Training Developed by the
Navy PPE Working Group
and
Naval Safety Center
Last Updated: 05 March 2013

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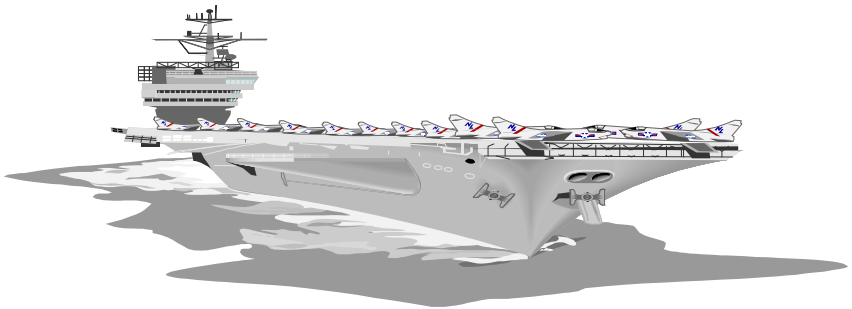
Objectives:

- This presentation is designed to
  - Provide essential information on chemical eye and face protection for:
    - Maintenance personnel
    - Work Center Supervisors
    - Safety Officers
    - Hazardous Materials Coordinators
    - Medical Department Representatives
  - Correct common misunderstandings and ineffective use of chemical eye protection



Navy PPE Training Requirements

- *OPNAVINST 5100.23G, paragraph 2013(a)*
  - Activities shall provide training to each employee who is required to use PPE to include at least the following:
    (1) When PPE is necessary
    (2) What PPE is necessary
    (3) How to properly don, doff, adjust and wear PPE
    (4) The limitations of the PPE
    (5) The proper care, maintenance, useful life, storage and disposal of the PPE
    (6) Ability to recognize that defective or damaged PPE shall not be used

- *OPNAVINST 5100.19E, paragraph B1202(c)*
  - Division officers shall ensure that assigned personnel are adequately trained on the type and proper use of PPE required at their work stations

How to Use This Training

- Be sure to review the instructor notes contained within this training as they provide important additional details

- This presentation can be downloaded from:
  - Naval Safety Center's Safety Officer Training Materials web page
    (see notes)
  - NAVSEA's Maritime DC and PPE Information Center web page
    (see notes)

First Things First

- Before working with chemicals, always check
  - Maintenance Requirement Card (MRC)
  - The product Material Safety Data Sheet (MSDS)/Safety Data Sheets (SDS)
  - The command Industrial Hygiene (IH) survey report
- Receive training on applicable PPE
  - This Chemical Eye and Face PPE training is available on the Naval Safety Center web site (see notes)

PPE Should Be the Last Resort!

- Problems with PPE
  - It can fail
  - Sailor can forget to wear it
  - It can be worn improperly

- Can the Sailor be protected by other means (see notes)?
  - Substitution
  - Engineering Controls
  - Administrative Controls

- If the above controls are not feasible or not protective enough, then PPE is appropriate

Types of Eye Protection

- Chemical Protection
  - Chemical goggles
    - Indirectly vented (“splash proof”)
    - Non-vented
- Impact and Particle Protection
  - Safety Glasses
  - Impact goggles
- Radiation Protection
  - Welder’s goggles and helmets
- This training concentrates on Chemical Protective eye wear

Did You Know?

- The Navy requires that eye protection must be stamped with

"Z-87+"

ANSI Z-87.1 Standard

- What does it mean?
  - American National Standards Institute
    - Indicates that the eye protection has undergone thorough safety testing using best known methods and procedures
  - Eye protection without the “Z87+” designation should not be used for protection
  - Note: equipment that meets ANSI Z-87.1 standard doesn’t necessarily mean you’re using the right eye protection for the job
    - Ex. ESS Flight Deck Goggles for protection against liquid chemicals (see notes)

NSTM 670 Vol. 2

Hazardous Materials User's Guide (HMUG)

- Contains PPE recommendations and information for 20 chemical groups
  - Eye and face protection
  - Gloves
  - Clothing
  - Foot protection
  - Respiratory protection
- Previously was OPNAVINST 5100.28
  - HMUG was incorporated into NSTM 670 in June 2012

Chemical Protective Eyewear

OSHA Definition of a Goggle

Safety goggles are intended to shield the wearer's eyes from impact hazards such as flying fragments, objects, large chips, and particles. Goggles fit the face immediately surrounding the eyes and form a protective seal around the eyes. This prevents objects from entering under or around the goggles.

Safety goggles may incorporate prescription lenses mounted behind protective lenses for individuals requiring vision correction. Take time to consider specific lens, frame, and ventilation options when selecting safety goggles.

Non-Vented Goggles

- Provide impact AND liquid/vapor protection. Can be used for:
  - Working with liquids or chemicals with irritating vapors
    - Should always be used when working with solvents, fuels, and oxidizers.
    - See NSTM 670, Part II (HMUG)*
  - Grinding
  - Sanding

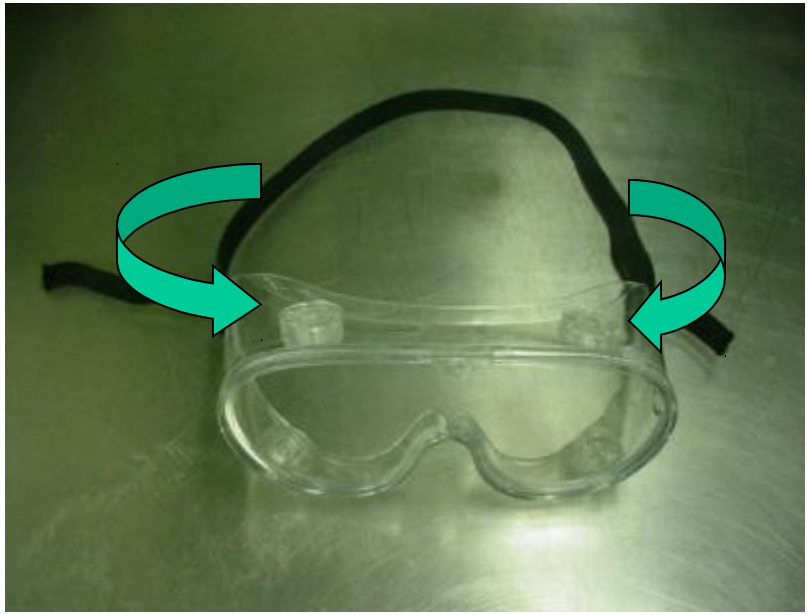
Note that there are NO vents on these goggles!

Non-Vented Goggles

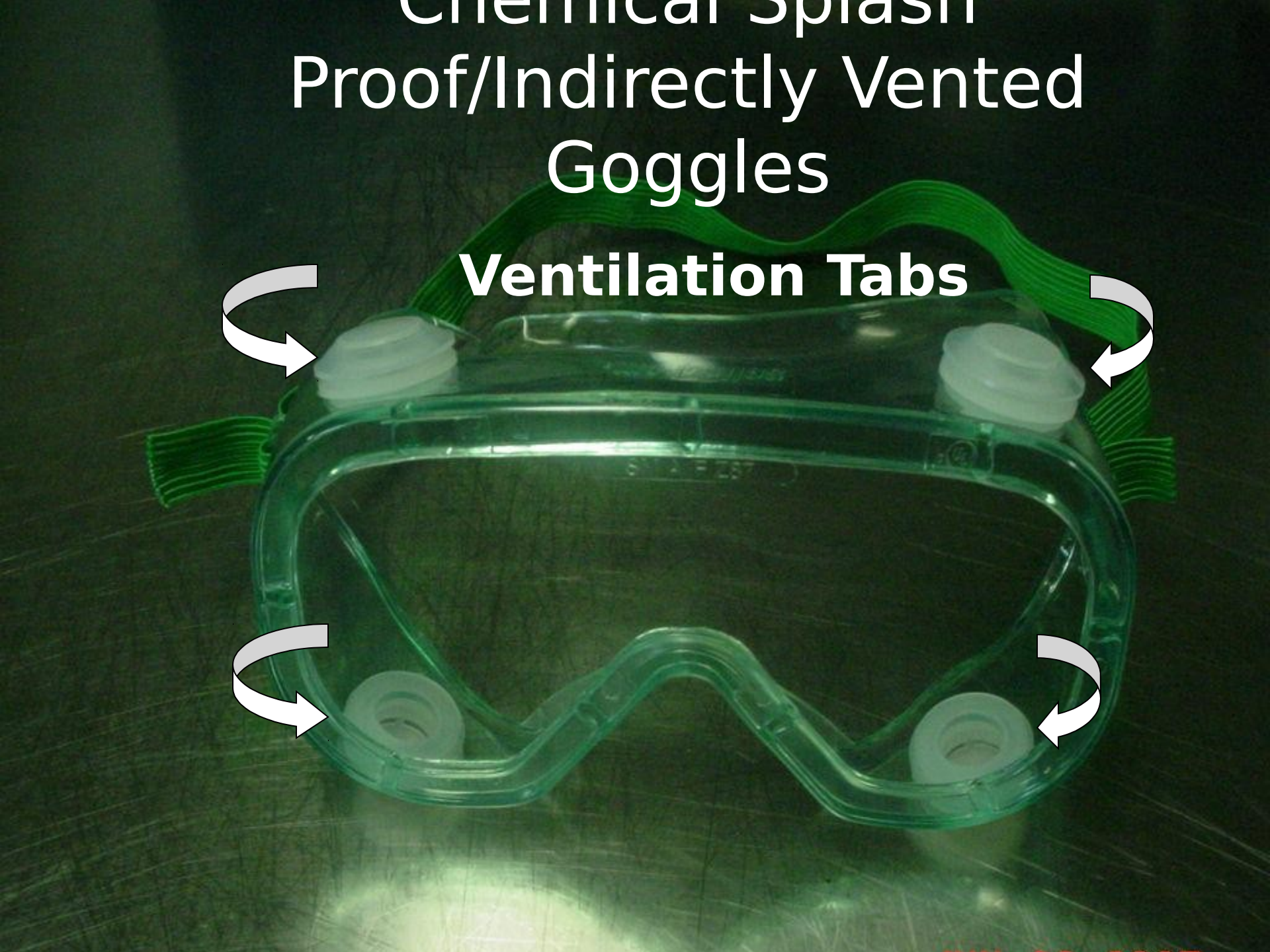
Chemical Goggles

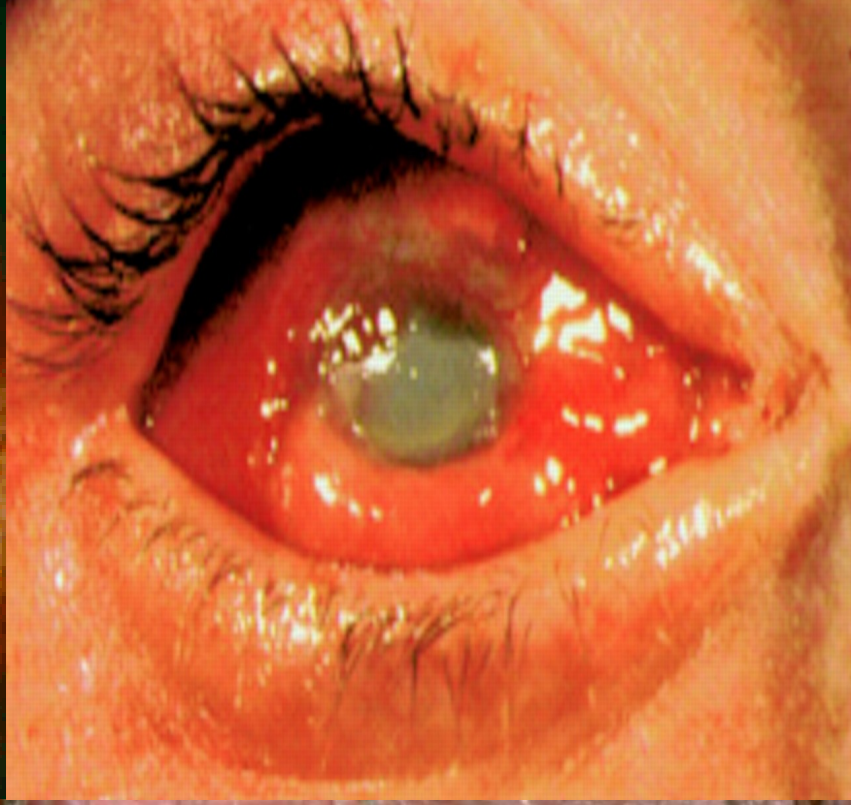
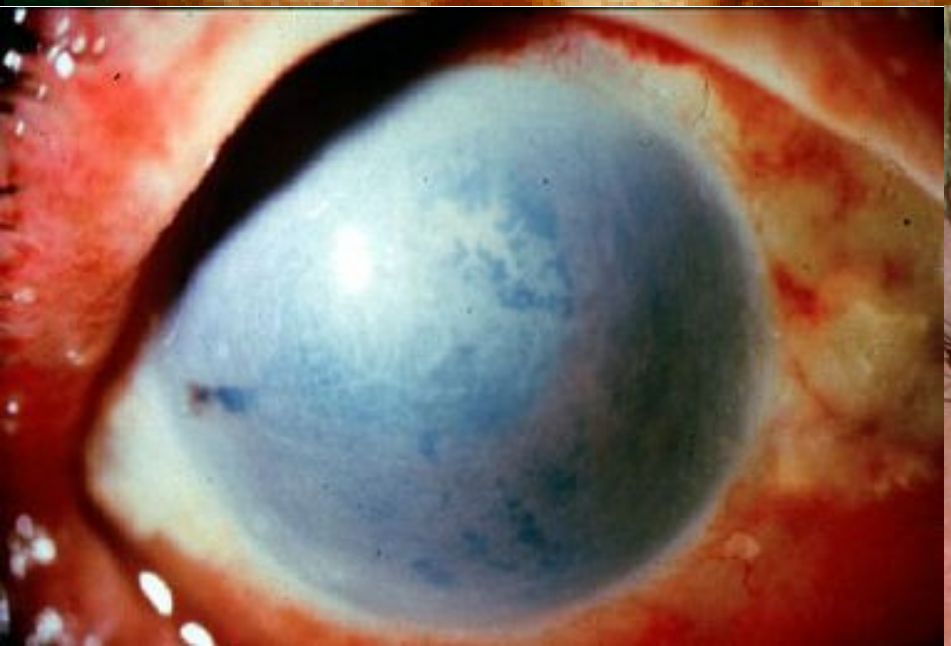
- Provide impact and splash resistance
- Good for:
  - Painting
  - Priming
  - Stripping
  - Jobs that may result in chemical splashes
  - NOTE: NSTM 670 HMUG recommends non-vented goggles for certain materials (fuel, solvent, or oxidizer)

Note the liquid trap vents



Chemical Splash Proof/Indirectly Vented Goggles



Eye protection that only protects from *impact and/or flying particles* should *NOT* be used for protection against industrial chemicals because the ventilation openings in the top and sides open straight through the goggle and will allow passage of liquids

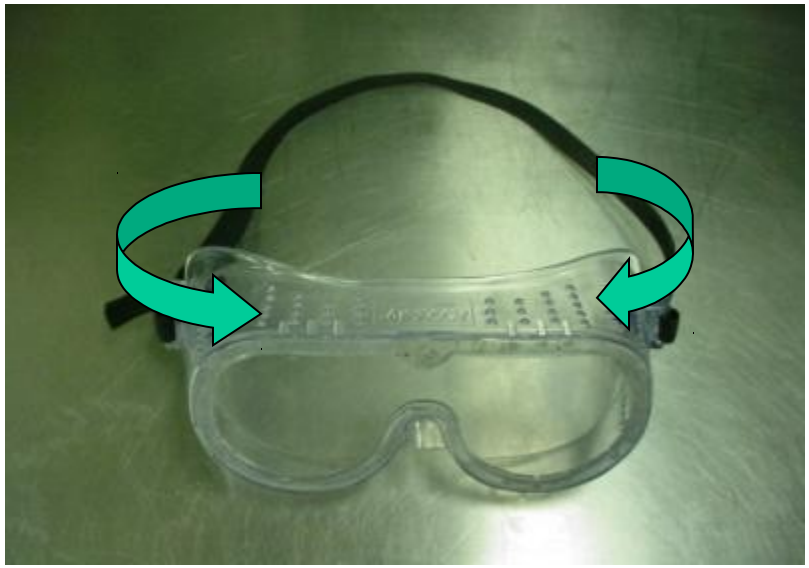
Safety Glasses

- Provide ONLY protection from impact or flying particles
  - Milling
  - Drilling
  - Cutting
  - Punching metal
- Can use goggles instead, if desired

Vented Impact Goggles

- Only provide protection from impact and from flying particles
- Can be used for:
  - Chipping
  - Needle gunning
  - Drilling
  - Sawing
  - And any job with large flying debris
- **Not for protection against liquids, vapors, or gases**

Note the multiple vents



Ventilation Holes

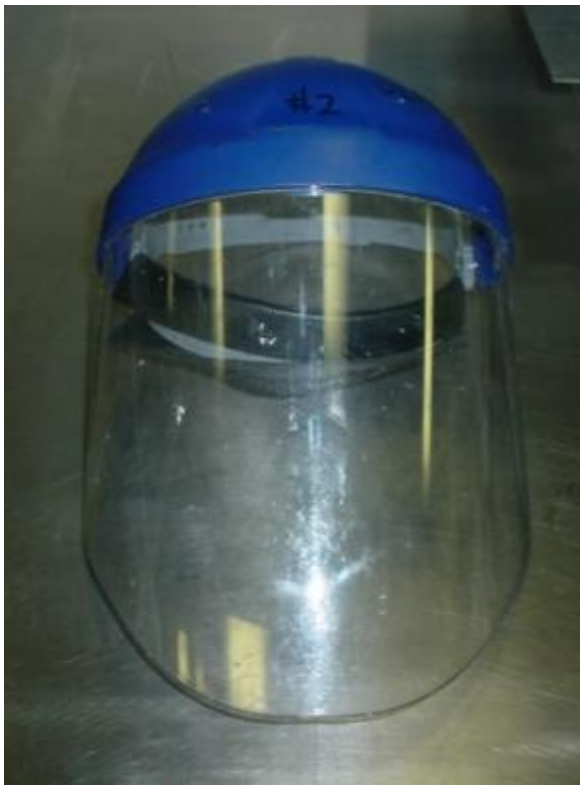
Flight Deck Goggles

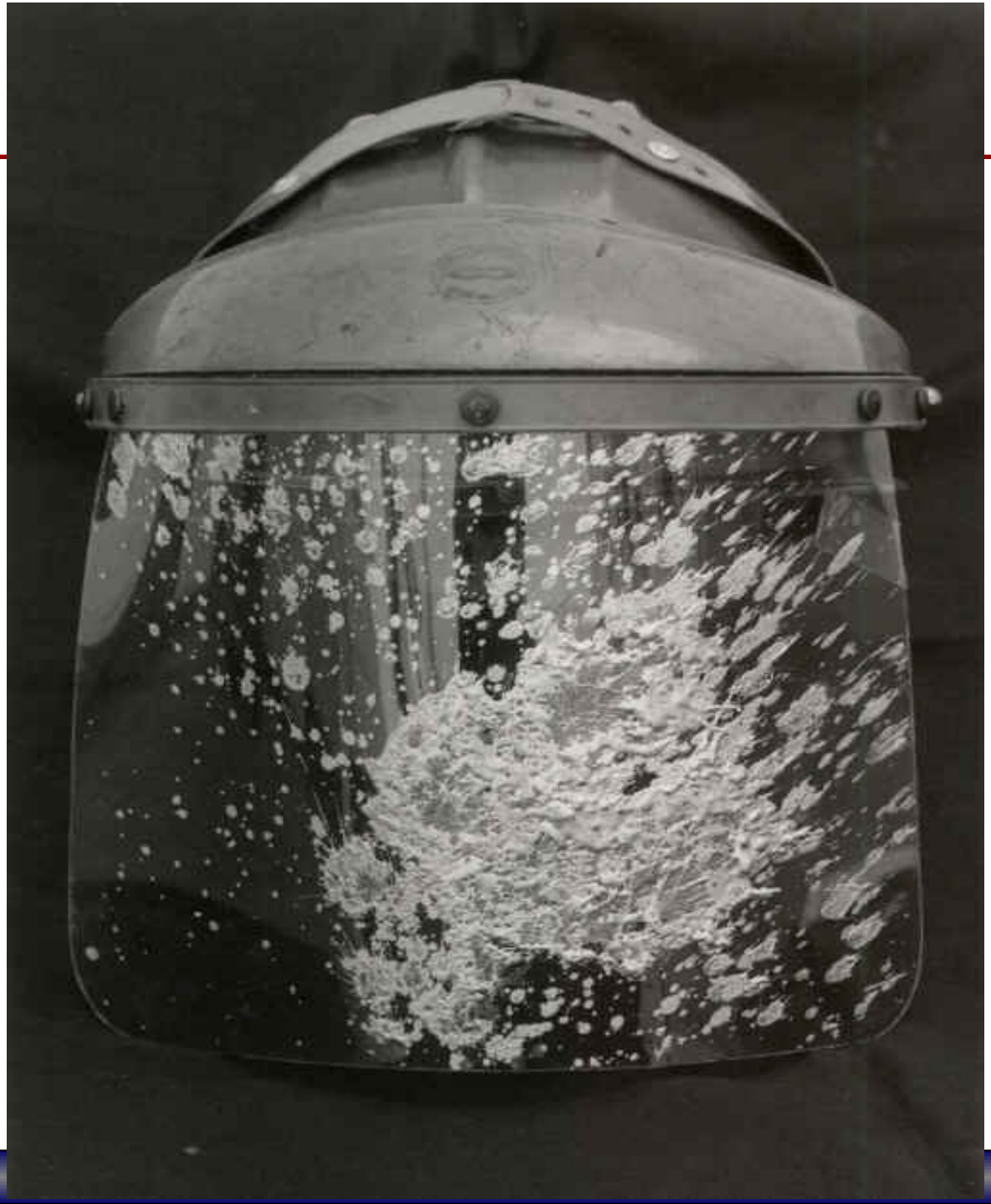
- Don’t use for protection against liquid chemicals!

ESS

Face Shield

- Is used to protect your face from flying debris or chemical splashes
- It is not a substitute for other eye protection
  - Must use with some other form of eye protection
- Required along with splash-proof or non-vented goggles when pouring/mixing liquid chemicals





Chemical Eye and Face PPE Selection Matrix

- The Navy PPE Working Group developed a matrix which helps shipboard maintenance personnel and their supervisors

- Illustrates NSTM 670 HMUG chemical protective eye and face PPE recommendations

- Can be downloaded from (See Notes) :
  - Naval Safety Center's Safety Officer Training Materials webpage (see Notes)
  - NAVSEA's Maritime DC and PPE Information Center (see Notes)

Eye and Face Protection Selection Matrix

Instructions and Guidance

1. The matrix contains eye and face PPE recommendations intended to protect the user from harmful chemical exposures and was developed using data in the Naval Ship's Technical Manual (NSTM) 670, Part II.

2. The user should consult NSTM 670 for additional information on each chemical group and other PPE (ex. hand, foot, body, etc.) which may be recommended for each.

3. The matrix contains links which will lead the user to additional information such as photos of PPE, National Stock Number (NSN), and NAVSEA Standard PMS Identification Number (SPIN) information.

Color-Coding Legend

Item meets the recommendation of the NSTM 670 (Part II) Hazardous Materials User Guide
Item is not recommended for protection against chemicals in that particular group
Consult MSDS to determine proper PPE, If Applicable
The item is not specifically recommended by the HMUG but may be selected if desired

General Notes and Recommendations

Always review the product's Material Safety Data Sheet (MSDS) and container label to determine specific chemicals that comprise the product and protective measures required before using the material.

Precheck protective eye and face PPE to ensure it's in good condition and ready-for-use

**Make sure goggles and faceshields are clean*

**PPE shouldn't have cracked/damaged lenses*

**Elastic headbands on goggles should be "stretchy"*

**Ensure that tabs on splash-proof goggles are installed correctly*

Enter "Eye and Face Protection Selection Matrix"

Last Updated: 21 February 2013

NSTM 670 (Vol. 2) HMUG Chemical Group #	NSTM 670 (Vol. 2) HMUG Chemical Group Name	Eye Protection Recommended (Click on eye protection types for more information)					Faceshield Required?
		Splash-Proof Goggles	Non-Vented Goggles	Vented Goggles*	Safety Glasses*	Flight Deck Goggles**	
Group 1	Acids	Y	OK	N	N	N	When pouring/mixing
Group 2	Alkalies/Bases/Caustics	Y	OK	N	N	N	When pouring/mixing
Group 3	Detergents/Soaps	Y	OK	N	N	N	If desired
Group 4	Photographic Chemicals	Y	OK	N	N	N	When splashing may occur
Group 5	Adhesives	Y	OK	N	N	N	If desired
Group 6	Cleaning Compounds	Y	OK	N	N	N	When splashing may occur
Group 7	Aerosols	Y	OK	N	N	N	When splashing may occur
Group 8	Paint Materials (Oil-Based)	Y	OK	N	N	N	When pouring/mixing paint, strippers, or thinners or paint spraying operations (unless full-face respirator used)
Group 9	Solvents	Y	Y	N	N	N	When splashing may occur
Group 10	Fuels	Y	Y	N	N	N	When filling fuel tanks or when splashing is possible
Group 11	Lubricants/Oils	Y	OK	N	N	N	If desired
Group 12	Hydraulic Fluids	Y	OK	N	N	N	When splashing may occur
Group 13	Greases	Y	OK	N	N	N	If desired
Group 14	Polish/Wax Compounds	Y	OK	N	N	N	If desired
Group 15	Corrosion Preventive Compounds	Y	OK	N	N	N	When pouring corrosion preventive compounds
Group 16	Antifreeze	Y	OK	N	N	N	When splashing may occur
Group 17	Compressed Gases	Consult MSDS for Proper PPE, If Applicable					
Group 18	Oxidizers	N	Y	N	N	N	When pouring/mixing oxidizers
Group 19	Fluorescent Lamps	Y	OK	N	N	N	If desired
Group 20	Heavy Metals	Y	OK	N	N	N	If desired

* Vented goggles and safety glasses should only be used for protection from flying particles and/or impact

**Flight Deck Goggles areauthorized for flight deck use only

Item is specifically recommended by HMUG

Item is not recommended for protection against chemicals in this group

Item provides additional protection and may be selected if desired

Review the Material Safety Data Sheet (MSDS) and/or product label to determine which chemicals are in the product.

BACK TO "HOW TO USE THIS MATRIX"

SPLASH-PROOF "CHEMICAL" GOGGLES

This type of goggle has "indirect" ventilation. The ventilation tabs act to reduce fogging while minimizing the risk of hazardous liquid entry.

Since these goggles are still ventilated, hazardous gases/vapors can still easily enter.

These goggles also are designed to meet the ANSI Z-87.1 standard for impact protection.

Remember to check goggles for the "Z-87+" somewhere on the item (usually the corner of the lens)! If no "Z-87+" is present, then do not use!

NAVSEA SPIN #: 10142

NSN: 4240-01-063-5996

BACK TO EYE AND FACE PROTECTION SELECTION MATRIX

NAVSEA SPIN

- Standard PMS Item Name (SPIN) on the shipboard Maintenance Requirement Card

- The SPIN is used to ensure that the proper tool, equipment, or item is being used or ordered.

Let's Run Through a Scenario

Alternate Eye Protection Selection

- Suppose an MRC requires the use of Toluene
  - Toluene is a Solvent, HMUG Group #9
- The MRC requires Non-Vented Goggles (SPIN #03707)
- However, non-vented goggles are currently unavailable onboard. Supply reorders the goggles but they won't arrive for over a week
- Use the matrix to determine what other eye protection may be an acceptable alternative

NSTM 670 (Vol. 2) HMUG Chemical Group #	NSTM 670 (Vol. 2) HMUG Chemical Group Name	Eye Protection Recommended (Click on eye protection types for more information)					Faceshield Required?
		Splash-Proof Goggles	Non-Vented Goggles	Vented Goggles*	Safety Glasses*	Flight Deck Goggles**	
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Group 4	Photographic Chemicals	Y	OK	N	N	N	When splashing may occur
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Group 19	Fluorescent Lamps	Y	OK	N	N	N	If desired
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Review the Material Safety Data Sheet (MSDS) and/or product label to determine which chemicals are in the product.

BACK TO "HOW TO USE THIS MATRIX"

Proper Eye and Face PPE Storage

- Do not store eye protection in tool box due to potential for scratching lens
- Do not store eye or face protection in HAZMAT locker due to potential chemical contamination and degradation of protective material
- Ensure safety glasses and goggles are properly cleaned prior to storage
- Do not hang goggles by their elastic headband

A Key to Success

- Wearing the proper PPE!
  - Most mishaps occur when proper PPE is available but not worn (or worn improperly)
    - Goggles on forehead
      - "I'll just take these off for a minute"
    - Face shields used without protective eyewear
  - Work Center Supervisors MUST be the first line of enforcement

Another Key to Success

- Make sure your eye and face protection is in good condition!
  - Clean safety glasses, goggles, faceshield
  - No cracks or damaged lenses
  - Make sure the elastic headband on goggles is still elastic (stretchy)
  - Make sure tabs aren't missing from splash-proof goggles
  - If lenses are severely scratched order a new pair

Feedback

- If you identify problems with PPE recommendations in the MRC, NSTM 670 HMUG, or other references contact your Work Center Supervisor

- Submit a feedback report using the appropriate form (usually in the reference itself) so that the problem can be resolved

Other Eye and Face Protection Resources

- Federal OSHA PPE Guide (see notes)
- NIOSH Eye Safety webpage (see notes)
- Eye protection manufacturer web sites

If you have questions or comments regarding this presentation please contact the Naval Safety Center feedback line:

safe-oshfdbk@navy.mil

If you don't know,asl